

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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1745

In re the Application of: **Nobuaki SUGITA**

Group Art Unit: 1745

Serial No.: **09/528,986**

Examiner: **Mark Ruthkosky**

Filed: **March 20, 2000**

P.T.O. Confirmation No.: 5980

For: **Sealed Battery with Less Electrolyte Leakage**

SUBMISSION OF APPEAL BRIEF

Commissioner for Patents
Washington, D.C. 20231

October 8, 2002

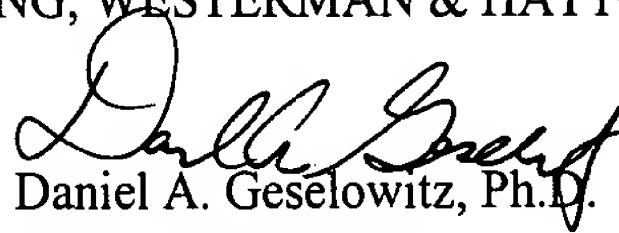
Sir:

Submitted herewith are an original and two copies of an Appeal Brief in the above-identified U.S. patent application.

Also enclosed is a check in the amount of **\$320.00** to cover the cost of filing this Appeal Brief. In the event that any additional fees are due with respect to this paper, please charge Deposit Account No. 01-2340. This paper is filed in triplicate.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP


Daniel A. Geselowitz, Ph.D.
Agent for Applicant
Reg. No. 42,573

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THE UNITED STATES PATENT AND TRADEMARK OFFICE
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Appeal No.

In re the Application of: Nobuaki SUGITA

Group Art Unit: 1745

Serial No.: 09/528,986

Examiner: Mark Ruthkosky

Filed: March 20, 2000

P.T.O. Confirmation No.: 5980

For: SEALED BATTERY WITH LESS ELECTROLYTE LEAKAGE

BRIEF ON APPEAL

Commissioner for Patents
Washington, D.C. 20231

October 8, 2002

Sir:

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Sanyo Electric Company, Ltd., as indicated in the Assignment recorded March 20, 2000, on Reel 010636, Frame 0947.

II. RELATED APPEALS AND INTERFERENCES

To Appellants' knowledge, there is no other appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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III. STATUS OF CLAIMS

Claims 1-8 are pending in this application. No claim has been canceled during prosecution.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

APPEAL BRIEF FOR THE APPELLANTS

Ex parte Nobuaki SUGITA

Serial Number: 09/528,986

Filed: March 20, 2000

Appeal No. :

Group Art Unit: 1745

Examiner: Mark Ruthkosky

Daniel A. Geselowitz, Ph.D.
Registration No. 42,573
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PATENT TRADEMARK OFFICE

Date: October 8, 2002

Atty. Docket No. 020259
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Claims 1-8 stand rejected as of the Advisory action dated July 24, 2002. The rejection of claims 1-8 is hereby appealed.

IV. STATUS OF AMENDMENTS

In response to the final Office action of January 18, 2002, an Amendment under 37 C.F.R. 1.116 was filed on July 10, 2002. In that paper, an amendment to the specification was proposed. No amendment to the claims was proposed in that paper.

The Advisory action dated July 24, 2002, indicated that the proposed amendment to the specification will be entered for purposes of appeal.

V. SUMMARY OF THE INVENTION

The invention as recited in claim 1 is hereby summarized with reference to the specification and drawings:

1. A sealed battery (see specification starting on page 1, lines 13-15; Figure 1), comprising:
a generator element (page 7, line 10) that is an electrode group (reference numeral 20;
page 7, line 11) impregnated with electrolyte;
an external casing (reference numeral 10; page 7, line 14) that has an opening (page 7, line 12; see Figure 1) and encloses the generator element;
a closure cap (reference numeral 30; page 7, line 13) for sealing the opening, the closure cap having a gas release valve (reference numeral 36; page 9, line 13) that is formed by covering

a gas release hole (reference numeral 360; page 9, lines 16-17) **in the closure cap with a thin film** (reference numeral 361; page 9, lines 15-16); **and**

a shielding member (reference numeral 342; page 11, line 21) **that is located between the thin film and the generator element to protect the thin film from the electrolyte so as to secure a gas channel from an internal space of the external casing to the gas release hole.**

Claim 2 depends from claim 1 and recites that a space is provided between the shielding member (reference numeral 342) and the thin film (reference numeral 361) to allow gas to flow from the internal space of the external casing to the gas release hole. This is disclosed on page 16, lines 15-18, and the space may be seen in Figure 2.

Claim 3 depends from claim 2 and recites that the shielding member is a plate set in parallel with the thin film. This may be seen in the embodiment of Figure 2, as disclosed on page 16, lines 15-18.

Claim 4 depends from claim 3 and recites that the size of the shielding member relative to a diameter of the gas release valve is equal to or greater than the thin film. This limitation is disclosed on page 11, lines 22-23.

Claim 5 depends from claim 1 and recites that the shielding member prevents electrolyte that escapes from the generator element from perpendicularly hitting the thin film. This structural limitation is discussed on page 16, lines 3-12.

Claim 6 depends from one of claims 1 to 5 and further recites an insulating member (reference numeral 34; page 11, line 2; page 16, line 16) set between the generator element and the closure cap (reference numeral 30). The shielding member (reference numeral 342) is held by the insulating member.

In claim 7, the shielding member is attached to the insulating member.

In claim 8, the shielding member and the insulating member are integrally formed (page 13, line 5; page 16, line 23).

VI. ISSUES

A. Whether claims 1-8 are anticipated under 35 U.S.C. 102(a) or unpatentable under 35 U.S.C. 103(a) over Wakabe et al. (U.S. Patent No. 6,136,464) (Point 4 of final Office action of January 18, 2002).

B. Whether claims 1-2 and 4-5 are unpatentable under 35 U.S.C. 103(a) over JP 07022013A (Point 5 of final Office action of January 18, 2002).

VII. GROUPING OF THE CLAIMS

For purposes of this appeal, the claims stand or fall together.

VIII. ARGUMENTS

Issue A. Whether claims 1-8 are anticipated under 35 U.S.C. 102(a) or unpatentable under 35 U.S.C. 103(a) over Wakabe et al. (U.S. Patent No. 6,136,464)

Appellants first note that Wakabe et al. is cited in the final Office action of January 18, 2002, as a reference under 35 U.S.C. 102(a). Appellants respectfully note that Wakabe et al. is not a reference under 35 U.S.C. 102(a), since its publication date of October 24, 2000, is after the filing date of the present application (March 20, 2000). Wakabe et al. will be treated here as a reference under 35 U.S.C. 102(e).

Since Appellants argue below that Wakabe et al. does not teach or suggest the limitations of the claims at issue, Appellants here combine the arguments concerning anticipation under 35 U.S.C. 102 and obviousness under 35 U.S.C. 103.

1. Errors in the rejection and specific limitations not described in the prior art relied on in the rejection.

The Examiner states that: "The embodiments of the reference show all of the elements of the instant claims." Appellants respectfully disagree, and argue that Wakabe et al. does not teach all of the elements of the claims at issue and, moreover, provides no suggestion or motivation for those elements not taught. That is, there is no anticipation and no *prima facie* case of obviousness can be made based on Wakabe et al.

Specifically, with regard to independent claim 1, Applicants here argue that the Examiner has made errors with regard to a) a gas release valve; b) a thin film covering a gas release hole; and c) a shielding member. Appellants argue that there is no teaching in the reference of a shielding member.

a) Regarding the Gas release valve.

The Examiner states that there are two separate valves in Wakabe et al. (final Office action, page 3, line 8). The Examiner states that “in one embodiment, the valve includes a thin film cover which is penetrated by a cutting device (see figures 4, 8, or 9 and col. 6, line 40 through col. 7).”

The Examiner here appears to be referring to Wakabe’s charge-discharge lead 2 or 102 and charge-discharge lead cutting device 103, which are located below gas vent hole V in case cover 108. (See column 7, lines 16-38). However, Appellants note that the charge-discharge lead of Wakabe et al. is designed to be cut by lead cutting device 103, and the purpose of this cutting is to interrupt current flow (column 8, line 6; line 23, etc.), and **not** to release gas. Thus, although there is a vent hole V above the charge-discharge lead, these elements do not represent a gas release valve as recited in claim 1.

That is, Appellants believe that the Examiner is in error in the statement “The cutting device acts as a parallel barrier formed between the electrode assembly and the cover vent” (final Office action, page 3, lines 11-12), which implies that the cutting device serves to release gas. The charge-discharge lead does not block the flow of gas, as seen most clearly in Wakabe et al.’s Figure 10.

The second valve referred to by the Examiner is apparently that discussed on page 3, lines 12-17, discussing the embodiment in Wakabe’s Figures 14A-D. The Examiner refers to the “opening formed in the cover plate of the battery which is covered with a thin plate and a pressure plate.” This apparently refers to penetration opening 211, discussed in Wakabe et al. in column 11, lines 11-21. Wakabe et al. does indicate that a safety valve mechanism can be constructed by a laminated product including the a laminated product including the cover plate 203, the metal thin plate 209 and the pressure plate 210.

To summarize, the first “gas release valve” in cited by the Examiner in Wakabe et al. is, in fact, not a gas release valve. Only the second cited “gas release valve” is, in fact, a gas release valve, and issues regarding the second gas release valve will be discussed below.

b) Regarding the Thin film covering a gas release hole.

On page 3, line 8, the Examiner refers to the “thin film cover” of one embodiment of Wakabe et al. as being the “thin film” of claim 1. However, as noted above, the Examiner refers here to Wakabe’s charge-discharge lead 102. Appellants have noted that charge-discharge lead 102 is not part of a gas release valve. Neither does charge-discharge lead 102 cover a gas release hole (see Wakabe’s Figure 10). Appellants respectfully assert that the Examiner is in error that Wakabe et al.’s charge-discharge lead 102 meets the limitations of the thin film of claim 1.

Therefore, only Wakabe’s metal thin plate 209 can be considered to represent a thin film covering a gas release hole.

c) Regarding the Shielding member.

The Examiner has apparently taken Wakabe’s packing material in Figure 4 and Figures 14A-D as the recited shielding member of claim 1. Claim 1 recites “a shielding member that is located **between the thin film and the generator element to protect the thin film from the electrolyte** so as to secure a gas channel from an internal space of the external casing to the gas release hole” (emphasis added).

As noted above, Figure 4 does not illustrate a gas release valve or a thin film. Moreover, packing 9 in Figure 4 is not between charge-discharge lead 2 and electrode element 12. This is another limitation of claim 1 not illustrated in Wakabe's Figures 4-13.

With regard to Wakabe et al.'s Figure 14, the Examiner has apparently taken packing 207 as the recited shielding member, and packing 207 is generally located below metal thin plate 209 and above the electrode element.

However, Appellant's refer to Wakabe et al.'s Figure 14C, which is a bottom view "showing a condition after assembling the battery cover unit" (column 4, lines 45-48). That is, Figure 14C illustrates the bottom view of the same unit illustrated in partially cut-away view in Figure 14B. Appellants note that in Figure 14C, gas discharge opening 231 is **plainly visible** and surrounded by two rectangles. It is apparent that these rectangles represent an opening in packing 14C that totally exposes gas discharge opening 231 from below. (Note that packing 207 is clearly labeled as present in Figure 14C.)

Although it is not obvious in Figure 14B, it is apparent that this partially cut-away side view has not cut-away packing 207 in the same plane as cover plate 203. That is, the hole in the packing below opening 231 is not shown in Figure 14B, but is nonetheless present. Therefore, packing 207 cannot serve to protect thin metal plate 209 from electrolyte from the electrode element. There appears to be nothing taught in Wakabe et al. that could serve this purpose.

Appellants also note that the Examiner states: "The packing material is porous which allows for the gas to exit through the vent hole" (page 3, line 16). Appellants assert that this is **not** taught in Wakabe et al. Rather, Wakabe et al. indicates in column 9, line 43, that the packing 207 is

comprised of a resin such as polypropylene or polyethylene. This is the same material as packing 204 (column 9, line 27), which is provided “so as to enhance the hermetic ability and insulation performance ...” (column 10, lines 61-62). That is, this is a hermetic sealing material that would **not** be porous.

In conclusion, Appellants respectfully argue that the Examiner has erred in indicating Wakabe et al.’s teaching of a shielding member as recited in claim 1, and that, in fact, **Wakabe et al. does not teach a shielding member** as recited in claim 1.

2. How the limitations render the subject matter of the claims unobvious over Wakabe et al.

Appellants have argued in point 1 that Wakabe et al. does not teach “a shielding member that is located between the thin film and the generator element to protect the thin film from the electrolyte so as to secure a gas channel from an internal space of the external casing to the gas release hole”. Appellants here argue that there is no suggestion or motivation for such a shielding member in Wakabe et al.

As discussed above, Wakabe et al. illustrates the bottom view of the battery cover unit in Figure 14C, and gas discharge opening 231 is plainly exposed from the bottom. Appellants have argued that Wakabe’s packing 207 is not a shielding member. The Examiner has provided no indication of any other element in Wakabe et al. that could function as a shielding member, nor any other suggestion in Wakabe et al. for a shielding member.

Appellants can find no suggestion or motivation in the reference for a shielding member. In the absence of a teaching, suggestion or motivation for the shielding member, there can be no *prima facie* case for obviousness of claims 1-8 over Wakabe et al.

Issue B. Whether claims 1-2 and 4-5 are unpatentable under 35 U.S.C. 103(a) over JP 07022013A

1. Errors in the rejection and specific limitations not described in the prior art relied on in the rejection.

a. Regarding the gas release hole and the thin film

In the rejection, the Examiner states that JP'013 teaches a battery having a vented seal structure, with the vent including a battery cover with a gas emission hole, and the Examiner admits that "JP'013 does not teach the cover hole to be covered with a thin film" (final Office action, page 4, line 16). In the Response to Arguments (page 6 of the final Office action), the Examiner states that the vent hole, although not covered by a thin film, is covered with a thin metal terminal contact.

Here, the Examiner apparently refers to the negative electrode terminal plate 9 in JP'013 as the recited thin film, although the Examiner indicates that this is not a "thin film covering" the gas emission hole.

Appellants assert that this is an error in the rejection. Claim 1 requires that the thin film cover the gas release valve. However, in JP'013, terminal plate 9 does not "cover" a hole at all. First of all, the only relevant "hole" would appear to be gas emission hole 8a, which is below terminal plate 9 and is not clearly covered by the terminal plate. More significantly, terminal plate 9 has gas vent hole 9a (paragraph [0013]), which allows for the escape of gas, as shown in the arrows in Figures 2-4. Therefore, terminal plate 9 does not "cover" any region.

Appellants assert that no elements in JP'013 meet the limitations of the gas release hole and thin film recited in claim 1.

b. Regarding the shielding member

The Examiner apparently takes gasket 7 in JP'013 as the recited "shielding member." However, Appellants note that gasket 7 ruptures under pressure (paragraph [0013]), and therefore is not consistent with the recitation of claim 1, "to secure a gas channel from an internal space of the external casing to the gas release hole". That is, until gasket 7 ruptures, there is no gas channel.

Gasket 7 actually may be taken to function as a gas release valve. However, gasket 7 does not meet the structural limitations of the gas release valve of claim 1: there is no analogue of the gas release hole and no thin film covering such a hole.

Appellants assert that no element in JP'013 meets the limitations of the shielding member recited in claim 1.

2. How the limitations render the subject matter of the claims unobvious over JP 07022013A.

Appellants have argued above that JP'013 does not teach a gas release hole, thin film and shielding member as recited in claim 1. Appellants here argue that there is no suggestion in JP'013A for the limitations of claim 1 with regard to these elements.

As note above, gasket 7 in JP'013 ruptures when pressure is generated in the cell (paragraph [0013]), allowing gas to escape through gas vent hole 9a in terminal plate 9. Gasket 7 therefore functions as a valve, although the structure in JP'013 does not meet the limitations of claim 1.

That is, gasket 7 performs a function somewhat analogous to the thin film recited in claim 1. However, gasket 7 is made of resin (see paragraph [0013] and Derwent Abstract). This gasket is apparently in direct contact with the electrolyte, and the resin used is presumably inert to electrolyte. Therefore, there is no motivation at all to have an additional shielding member to protect gasket 7 from electrolyte.

Since there is no teaching, suggestion or motivation for a shielding member as recited in claim 1, no *prima facie* case of obviousness can be made for claims 1, 2, 4 and 5 using JP 07022013A, and the claims are non-obvious over this reference.

IX. APPENDIX: CLAIMS UNDER APPEAL

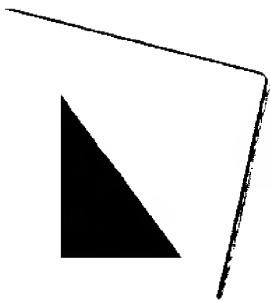
1. A sealed battery, comprising:

a generator element that is an electrode group impregnated with electrolyte;

an external casing that has an opening and encloses the generator element;

a closure cap for sealing the opening, the closure cap having a gas release valve that is formed by covering a gas release hole in the closure cap with a thin film; and

a shielding member that is located between the thin film and the generator element to protect the thin film from the electrolyte so as to secure a gas channel from an internal space of the external casing to the gas release hole.
2. The sealed battery according to Claim 1, wherein a space is provided between the shielding member and the thin film to allow gas to flow from the internal space of the external casing to the gas release hole.
3. The sealed battery according to Claim 2, wherein the shielding member is a plate set in parallel with the thin film.
4. (Amended) The sealed battery according to claim 3, wherein a size of the shielding member relative to a diameter of the gas release hole is equal to or greater than the thin film.



5. The sealed battery according to Claim 1, wherein the shielding member prevents electrolyte that escapes from the generator element from perpendicularly hitting the thin film.

6. The sealed battery according to one of Claims 1 to 5, wherein an insulating member is set between the generator element and the closure cap so as to electrically separate the generator element and the closure cap, and the shielding member is held by the insulating member.

7. The sealed battery according to one of Claims 1 to 5, wherein an insulating member is set between the generator element and the closure cap so as to electrically separate the generator element and the closure cap, and the shielding member is attached to the insulating member.

8. The sealed battery according to one of Claims 1 to 5, wherein, an insulating member is set between the generator element and the closure cap so as to electrically separate the generator element and the closure cap, and the shielding member and the insulating member are integrally formed.

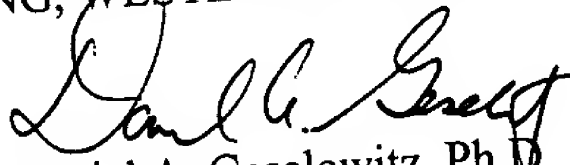
Brief on Appeal
Nobuaki SUGITA

U.S. Patent Application S.N. 09/523,986
Attorney Docket No. 020259

In the event this paper is not timely filed, appellant hereby petitions for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP


Daniel A. Geselowitz, Ph.D.
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